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$\log_m^n = a$ $\log_{mn}^{mn} = b$ [b]؟

$\log_m^n = a \Rightarrow n \log_m a = a \Rightarrow \log_m a = \frac{a}{n}$

$\log_{mn}^{mn} = b \Rightarrow (n \log_m a) \log_{mn}^{mn} = b \Rightarrow \log_m^{(a+1)} a = b = \frac{a+1}{a+1}$

$\Rightarrow [b], [\frac{a+1+a}{a+1}], [1 + \frac{a}{a+1}] \xrightarrow{a \geq 0} [b], [1 + \frac{a}{a+1}] \Rightarrow [b] \cup [1, \frac{a+1}{a+1}]$

$\cdot < \cdot < 1$

۱) $y = \sqrt{\frac{x}{\log x}}$ $\log x > 0 \Rightarrow x > 1$

$\log \frac{x}{1} \neq 0 \Rightarrow x \neq 1$

$D_f = (0, 1)$

۲) $\log_2 \frac{x^2-1}{x^2-1} \rightarrow \frac{x^2-1}{x^2-1} > 0$ $D?$

$\frac{x^2-1}{x^2-1} > 0 \Rightarrow (x-1)(x+1) > 0$

$\frac{x^2-1}{x^2-1} > 0 \Rightarrow \frac{x^2-1}{x^2-1} > 0$

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

$\log_n^a + \log_a^{\sqrt{n}} = 1$ $\xrightarrow{n=9} \log_9^a + \log_a^3 = 1$

$\log_9^a + \log_a^3 = 1 \Rightarrow \log_9^a + \log_a^3 = 1$

$t + \frac{1}{t} = 1 \Rightarrow t^2 - t + 1 = 0 \Rightarrow (t-1)^2 = 0 \Rightarrow t = 1$

$\log_9^a = 1 \Rightarrow a = 9$

$a = 9$

$\log_2^2, \log_2^3, \log_2^4, \log_2^5, \log_2^6, \log_2^7, \log_2^8, \log_2^9, \log_2^{10}, \log_2^{11}, \log_2^{12}, \log_2^{13}, \log_2^{14}, \log_2^{15}, \log_2^{16}, \log_2^{17}, \log_2^{18}, \log_2^{19}, \log_2^{20}, \log_2^{21}, \log_2^{22}, \log_2^{23}, \log_2^{24}, \log_2^{25}, \log_2^{26}, \log_2^{27}, \log_2^{28}, \log_2^{29}, \log_2^{30}, \log_2^{31}, \log_2^{32}, \log_2^{33}, \log_2^{34}, \log_2^{35}, \log_2^{36}, \log_2^{37}, \log_2^{38}, \log_2^{39}, \log_2^{40}, \log_2^{41}, \log_2^{42}, \log_2^{43}, \log_2^{44}, \log_2^{45}, \log_2^{46}, \log_2^{47}, \log_2^{48}, \log_2^{49}, \log_2^{50}, \log_2^{51}, \log_2^{52}, \log_2^{53}, \log_2^{54}, \log_2^{55}, \log_2^{56}, \log_2^{57}, \log_2^{58}, \log_2^{59}, \log_2^{60}, \log_2^{61}, \log_2^{62}, \log_2^{63}, \log_2^{64}, \log_2^{65}, \log_2^{66}, \log_2^{67}, \log_2^{68}, \log_2^{69}, \log_2^{70}, \log_2^{71}, \log_2^{72}, \log_2^{73}, \log_2^{74}, \log_2^{75}, \log_2^{76}, \log_2^{77}, \log_2^{78}, \log_2^{79}, \log_2^{80}, \log_2^{81}, \log_2^{82}, \log_2^{83}, \log_2^{84}, \log_2^{85}, \log_2^{86}, \log_2^{87}, \log_2^{88}, \log_2^{89}, \log_2^{90}, \log_2^{91}, \log_2^{92}, \log_2^{93}, \log_2^{94}, \log_2^{95}, \log_2^{96}, \log_2^{97}, \log_2^{98}, \log_2^{99}, \log_2^{100}$

$(\log_2^{\frac{a}{2}})^2 + (\log_2^{\frac{a}{2}})^2 = \log_2^a$

$\log_2^a + \log_2^a = 1 \Rightarrow 2 \log_2^a = 1 \Rightarrow \log_2^a = \frac{1}{2} \Rightarrow a = 4$

$a = 4$

$\log_2^2, \log_2^3, \log_2^4, \log_2^5, \log_2^6, \log_2^7, \log_2^8, \log_2^9, \log_2^{10}, \log_2^{11}, \log_2^{12}, \log_2^{13}, \log_2^{14}, \log_2^{15}, \log_2^{16}, \log_2^{17}, \log_2^{18}, \log_2^{19}, \log_2^{20}, \log_2^{21}, \log_2^{22}, \log_2^{23}, \log_2^{24}, \log_2^{25}, \log_2^{26}, \log_2^{27}, \log_2^{28}, \log_2^{29}, \log_2^{30}, \log_2^{31}, \log_2^{32}, \log_2^{33}, \log_2^{34}, \log_2^{35}, \log_2^{36}, \log_2^{37}, \log_2^{38}, \log_2^{39}, \log_2^{40}, \log_2^{41}, \log_2^{42}, \log_2^{43}, \log_2^{44}, \log_2^{45}, \log_2^{46}, \log_2^{47}, \log_2^{48}, \log_2^{49}, \log_2^{50}, \log_2^{51}, \log_2^{52}, \log_2^{53}, \log_2^{54}, \log_2^{55}, \log_2^{56}, \log_2^{57}, \log_2^{58}, \log_2^{59}, \log_2^{60}, \log_2^{61}, \log_2^{62}, \log_2^{63}, \log_2^{64}, \log_2^{65}, \log_2^{66}, \log_2^{67}, \log_2^{68}, \log_2^{69}, \log_2^{70}, \log_2^{71}, \log_2^{72}, \log_2^{73}, \log_2^{74}, \log_2^{75}, \log_2^{76}, \log_2^{77}, \log_2^{78}, \log_2^{79}, \log_2^{80}, \log_2^{81}, \log_2^{82}, \log_2^{83}, \log_2^{84}, \log_2^{85}, \log_2^{86}, \log_2^{87}, \log_2^{88}, \log_2^{89}, \log_2^{90}, \log_2^{91}, \log_2^{92}, \log_2^{93}, \log_2^{94}, \log_2^{95}, \log_2^{96}, \log_2^{97}, \log_2^{98}, \log_2^{99}, \log_2^{100}$

$\log_2^2 = \frac{1}{2}$ $\log_2^3 = \frac{1}{3}$ $\log_2^4 = \frac{1}{4}$

$\frac{1}{2} + \frac{1}{3} = \frac{5}{6}$ $\frac{1}{3} + \frac{1}{4} = \frac{7}{12}$ $\frac{1}{4} + \frac{1}{5} = \frac{9}{20}$ $\frac{1}{5} + \frac{1}{6} = \frac{11}{30}$ $\frac{1}{6} + \frac{1}{7} = \frac{13}{42}$ $\frac{1}{7} + \frac{1}{8} = \frac{15}{56}$ $\frac{1}{8} + \frac{1}{9} = \frac{17}{72}$ $\frac{1}{9} + \frac{1}{10} = \frac{19}{90}$ $\frac{1}{10} + \frac{1}{11} = \frac{21}{110}$ $\frac{1}{11} + \frac{1}{12} = \frac{23}{132}$ $\frac{1}{12} + \frac{1}{13} = \frac{25}{156}$ $\frac{1}{13} + \frac{1}{14} = \frac{27}{182}$ $\frac{1}{14} + \frac{1}{15} = \frac{29}{210}$ $\frac{1}{15} + \frac{1}{16} = \frac{31}{240}$ $\frac{1}{16} + \frac{1}{17} = \frac{33}{272}$ $\frac{1}{17} + \frac{1}{18} = \frac{35}{306}$ $\frac{1}{18} + \frac{1}{19} = \frac{37}{342}$ $\frac{1}{19} + \frac{1}{20} = \frac{39}{380}$ $\frac{1}{20} + \frac{1}{21} = \frac{41}{420}$ $\frac{1}{21} + \frac{1}{22} = \frac{43}{462}$ $\frac{1}{22} + \frac{1}{23} = \frac{45}{506}$ $\frac{1}{23} + \frac{1}{24} = \frac{47}{552}$ $\frac{1}{24} + \frac{1}{25} = \frac{49}{600}$ $\frac{1}{25} + \frac{1}{26} = \frac{51}{650}$ $\frac{1}{26} + \frac{1}{27} = \frac{53}{702}$ $\frac{1}{27} + \frac{1}{28} = \frac{55}{756}$ $\frac{1}{28} + \frac{1}{29} = \frac{57}{812}$ $\frac{1}{29} + \frac{1}{30} = \frac{59}{870}$ $\frac{1}{30} + \frac{1}{31} = \frac{61}{930}$ $\frac{1}{31} + \frac{1}{32} = \frac{63}{992}$ $\frac{1}{32} + \frac{1}{33} = \frac{65}{1056}$ $\frac{1}{33} + \frac{1}{34} = \frac{67}{1122}$ $\frac{1}{34} + \frac{1}{35} = \frac{69}{1190}$ $\frac{1}{35} + \frac{1}{36} = \frac{71}{1260}$ $\frac{1}{36} + \frac{1}{37} = \frac{73}{1332}$ $\frac{1}{37} + \frac{1}{38} = \frac{75}{1406}$ $\frac{1}{38} + \frac{1}{39} = \frac{77}{1482}$ $\frac{1}{39} + \frac{1}{40} = \frac{79}{1560}$ $\frac{1}{40} + \frac{1}{41} = \frac{81}{1640}$ $\frac{1}{41} + \frac{1}{42} = \frac{83}{1722}$ $\frac{1}{42} + \frac{1}{43} = \frac{85}{1806}$ $\frac{1}{43} + \frac{1}{44} = \frac{87}{1892}$ $\frac{1}{44} + \frac{1}{45} = \frac{89}{1980}$ $\frac{1}{45} + \frac{1}{46} = \frac{91}{2070}$ $\frac{1}{46} + \frac{1}{47} = \frac{93}{2162}$ $\frac{1}{47} + \frac{1}{48} = \frac{95}{2256}$ $\frac{1}{48} + \frac{1}{49} = \frac{97}{2352}$ $\frac{1}{49} + \frac{1}{50} = \frac{99}{2450}$ $\frac{1}{50} + \frac{1}{51} = \frac{101}{2550}$ $\frac{1}{51} + \frac{1}{52} = \frac{103}{2652}$ $\frac{1}{52} + \frac{1}{53} = \frac{105}{2756}$ $\frac{1}{53} + \frac{1}{54} = \frac{107}{2862}$ $\frac{1}{54} + \frac{1}{55} = \frac{109}{2970}$ $\frac{1}{55} + \frac{1}{56} = \frac{111}{3080}$ $\frac{1}{56} + \frac{1}{57} = \frac{113}{3192}$ $\frac{1}{57} + \frac{1}{58} = \frac{115}{3306}$ $\frac{1}{58} + \frac{1}{59} = \frac{117}{3422}$ $\frac{1}{59} + \frac{1}{60} = \frac{119}{3540}$ $\frac{1}{60} + \frac{1}{61} = \frac{121}{3660}$ $\frac{1}{61} + \frac{1}{62} = \frac{123}{3782}$ $\frac{1}{62} + \frac{1}{63} = \frac{125}{3906}$ $\frac{1}{63} + \frac{1}{64} = \frac{127}{4032}$ $\frac{1}{64} + \frac{1}{65} = \frac{129}{4160}$ $\frac{1}{65} + \frac{1}{66} = \frac{131}{4290}$ $\frac{1}{66} + \frac{1}{67} = \frac{133}{4422}$ $\frac{1}{67} + \frac{1}{68} = \frac{135}{4556}$ $\frac{1}{68} + \frac{1}{69} = \frac{137}{4692}$ $\frac{1}{69} + \frac{1}{70} = \frac{139}{4830}$ $\frac{1}{70} + \frac{1}{71} = \frac{141}{4970}$ $\frac{1}{71} + \frac{1}{72} = \frac{143}{5112}$ $\frac{1}{72} + \frac{1}{73} = \frac{145}{5256}$ $\frac{1}{73} + \frac{1}{74} = \frac{147}{5402}$ $\frac{1}{74} + \frac{1}{75} = \frac{149}{5550}$ $\frac{1}{75} + \frac{1}{76} = \frac{151}{5692}$ $\frac{1}{76} + \frac{1}{77} = \frac{153}{5836}$ $\frac{1}{77} + \frac{1}{78} = \frac{155}{5982}$ $\frac{1}{78} + \frac{1}{79} = \frac{157}{6130}$ $\frac{1}{79} + \frac{1}{80} = \frac{159}{6280}$ $\frac{1}{80} + \frac{1}{81} = \frac{161}{6432}$ $\frac{1}{81} + \frac{1}{82} = \frac{163}{6586}$ $\frac{1}{82} + \frac{1}{83} = \frac{165}{6742}$ $\frac{1}{83} + \frac{1}{84} = \frac{167}{6900}$ $\frac{1}{84} + \frac{1}{85} = \frac{169}{7060}$ $\frac{1}{85} + \frac{1}{86} = \frac{171}{7222}$ $\frac{1}{86} + \frac{1}{87} = \frac{173}{7386}$ $\frac{1}{87} + \frac{1}{88} = \frac{175}{7552}$ $\frac{1}{88} + \frac{1}{89} = \frac{177}{7720}$ $\frac{1}{89} + \frac{1}{90} = \frac{179}{7890}$ $\frac{1}{90} + \frac{1}{91} = \frac{181}{8062}$ $\frac{1}{91} + \frac{1}{92} = \frac{183}{8236}$ $\frac{1}{92} + \frac{1}{93} = \frac{185}{8412}$ $\frac{1}{93} + \frac{1}{94} = \frac{187}{8590}$ $\frac{1}{94} + \frac{1}{95} = \frac{189}{8770}$ $\frac{1}{95} + \frac{1}{96} = \frac{191}{8952}$ $\frac{1}{96} + \frac{1}{97} = \frac{193}{9136}$ $\frac{1}{97} + \frac{1}{98} = \frac{195}{9322}$ $\frac{1}{98} + \frac{1}{99} = \frac{197}{9510}$ $\frac{1}{99} + \frac{1}{100} = \frac{199}{9700}$

