بنام خدا

رایان معماریان یازدهم A تکلیف ۲۳:

SUBJECT:

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Year: Month: Day:

بین صفر و یک

۱

$$b=\frac{\log_n^{m^2n}}{\log_n^{mn}}=\frac{\log_n^m+\log_n^m+\log_n^n}{\log_n^m+\log_n^n}=\frac{2a+1}{a+1}=1+\frac{a}{a+1}\rightarrow [b]=1$$

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الف) $x>0\ ,\ \log_{\frac{1}{2}}^{x}\neq 0\rightarrow x\neq 1 \rightarrow D_f=(0,1)$

ب) $(x-2)(x+1)>0\rightarrow$ ① $\quad (x+1)(x-1)\geq 0\rightarrow$ ② $\quad$ ①$\cap$② $\rightarrow D_f=(-\infty,-1)\cup(2,+\infty)$

۳

$$\log_3^a+\log_a^3=2\rightarrow t+\frac{1}{t}-2=0\rightarrow t^2-2t+1=0\rightarrow t=1=\log_3^a\rightarrow \boxed{a=3}$$

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$$\log\frac{10}{2}=\log 10-\log 2=0.7=\log 5\ /\ (\log 5-\log 3)x^2+(2\log 3)x-\log 3-\log 5$$

$$=0.3x^2+0.8x-1.1\rightarrow\frac{\sqrt{\Delta}}{|a|}=\frac{\sqrt{1.96}}{0.3}=\frac{14}{3}$$

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$$\frac{\log_2^{10}}{\log_2^{14}}=\frac{\log_2^2+\log_2^5}{\log_2^2+\log_2^7}=\frac{1+2}{1+2.8}=\frac{30}{38}=\frac{15}{19}$$

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$$\frac{\log_3^6}{\log_3^{15}}=\frac{\log_3^3+\log_3^2}{\log_3^3+\log_3^5}=\frac{1+\frac{5}{14}}{1+1.5}=\frac{13}{20}$$

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$$\log_8^{18}+\log_8^8=\log_8^{144}=\log_{(2^3)}^{(12)^2}=\frac{2}{3}\log_2^{12}=m+1\Rightarrow\log_2^{12}=\frac{3(m+1)}{2}$$

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$$\left(\frac{5}{2}\right)^{1-2x}=\left(\frac{5}{2}\right)^{3x^2}\Rightarrow 3x^2=1-2x\Rightarrow 3x^2+2x-1=0\Rightarrow x=\frac{-2\pm 4}{6}$$

-1 ✗ , $\frac{1}{3}$

$$\log_8^4=\frac{2}{3}\log_2^2=\frac{2}{3}$$

Senobar

(9)

$\frac{1}{3}\log_2 b = \frac{2}{3}(1+a) \rightarrow \log_2 b = 2+2a = 2+2\log_2 3 = 2+\log_2 9$

$\rightarrow \log_2 \frac{b}{9} = 2 \rightarrow \frac{b}{9} = 4 \rightarrow b = 36 \rightarrow \log 108-8 = \log 100 = 2$

(10)

$\frac{b+c}{2} = a \rightarrow b+c = 2a \,/\, \frac{1}{5} = \frac{-a}{b} = \frac{4a}{b} = \log 4 \Rightarrow \frac{4a}{b} = 2\log 2$

$\rightarrow \frac{2a}{b} = \log 2 \rightarrow a = b\log\sqrt{2}$

$c = 2a - b = 2b\log\sqrt{2} - b = b(\log 2 - 1) = b(\log 2 - \log 10) = b\log 5^{-1}$

$\frac{c}{a} = \frac{b\log 5^{-1}}{b\log\sqrt{2}} = -2\log_2 5 \rightarrow \left(2^{-\frac{1}{8}}\right)^{-2\log_2 5} = 2^{-\frac{1}{4}\log_2 5} = 5^{-\frac{1}{4}\log_2 2} = 5^{-\frac{1}{4}} = \boxed{\sqrt[4]{5}}$